



POWER SOLUTIONS FOR

➤ Traffic & Intelligent Transportation Systems

TOTAL POWER SOLUTIONS BY ALPHA TECHNOLOGIES LTD.





7700 Riverfront Gate



Alpha Technologies Ltd.

Company Overview

With almost 4 decades of industry leadership in POWER, Alpha Technologies has established itself as the preeminent total power solutions provider and one stop source for AC, DC, hybrid and renewable powering solutions for the Telecom, CATV, Traffic, ITS, Industrial and Alternative Energy industries. Alpha's products are the trusted power behind traffic intersections and ITS networks, telecommunications and cable TV infrastructure and many more.

Our intimate knowledge of our customers allows us to understand powering problems better than other providers of power, and to quickly design/deliver solutions specifically tailored to solve your powering challenges. With multiple options for standardized and custom system design, Alpha has the ability to provide the ideal solution for virtually any application.

The Alpha Group

The Alpha Group represents an alliance of companies who share a common philosophy – to create world class powering solutions.

Collectively, Alpha Group members develop and manufacture AC, DC and Renewable power conversion, protection and standby products. Applications for these products include Cable TV, Telecom, Transportation, Industrial and Distributed Generation for a worldwide customer base. In addition to these core specialties, Alpha Group companies provide a complete range of installation and maintenance services.

Members of The Alpha Group include Alpha Technologies Ltd., Alpha Technologies Inc., Alpha Energy, Alpha Industrial Power, Altair Advanced Industries Inc., Alpha Technologies S.A., OutBack Power Technologies Inc., Alpha Technologies Europe Ltd., Alpha Technologies GmbH, Alpha Innovations Brasil, Alphatec Ltd., Alphatec Baltic, Alpha Tek ooo, Alpha Mexico Network Power and Alpha Technologies Turkey Enerji Ltd. Sti.

"The time between failure is unbelievable with the FXM -1100. It cut our On Call by 70% and the public does not even know of the power at the intersections."

Larry Turner, System Coordinator ATMS



Table of Contents

Uninterruptible Power Supplies (UPS) Solutions

| | |
|---|----|
| Power Solutions for Traffic and ITS | 4 |
| Alpha FXM UPS Family..... | 5 |
| FXM 350 | 6 |
| FXM 650 | 7 |
| FXM 1100..... | 8 |
| FXM 2000..... | 9 |
| FXM 1100 QC | 10 |
| FXM/Micro Communication Card | 11 |
| Remote Monitoring Capability | 12 |

Alpha Transfer Switches

| | |
|---|----|
| Universal Automatic Transfer Switch | 13 |
| Universal Generator Transfer Switch | 13 |
| Alpha Transfer Switch Configurations..... | 14 |

Alpha Enclosure Solutions

| | |
|------------------------------------|----|
| TE27-2218 | 16 |
| SE41-2722 <small>NEW</small> | 17 |
| SE48-1616 | 18 |
| SE48-2216 <small>NEW</small> | 19 |
| SE48-1909..... | 20 |

Alpha Batteries

| | |
|---|----|
| AlphaCell™ GXL..... | 21 |
| AlphaCell™ Gold-HP | 22 |
| AlphaCell™ XTV <small>NEW</small> | 23 |
| Remote Battery Management System..... | 24 |
| Battery Heater Mats..... | 25 |
| Battery Accessories | 26 |

AlphaGen™ Generators

| | |
|------------------------------------|----|
| AlphaGen™ DC Generator System..... | 27 |
| AlphaGen™ Portable | 28 |
| ACX 2000i <small>NEW</small> | 29 |

| | |
|----------------------------|-----------|
| ITS Solutions | 30 |
|----------------------------|-----------|

| | |
|-------------------------------------|-----------|
| Services & Support | 31 |
|-------------------------------------|-----------|

| | |
|-------------------------------------|-----------|
| UPS/BBS Selection Guide..... | 32 |
|-------------------------------------|-----------|

The logo for GIES (Global Industrial Equipment Sales) is displayed in large, blue, block letters against a dark background. The letters are slightly illuminated from behind, creating a glowing effect.

Power Solutions for Traffic and Intelligent Transportation Systems

Power disturbances that impact traffic signals and Intelligent Transportation Systems (ITS) not only create potentially dangerous conditions for transportation users but immediate gridlock and congestion on arterials and outlying intersections - impacting air quality, noise levels and transit times. Year to year, traffic control system failure accounts for an immeasurable number of automobile accidents, personal injury/fatalities and insurance claims. While this is no surprise to those of us familiar with the challenges of transportation, many may be unaware that strategically deployed and reliable backup power can minimize or even neutralize the root cause of many of these problems.

In the evolving Traffic market, after 15 years, Alpha continues to be the leader in providing back up power and power conditioning for traffic signalized intersections and ITS. To date, the majority of the States in America have standardized on Alpha UPS's for their applications, resulting in Alpha systems already backing up over 25,000 traffic intersections and ITS installations, as well as many other traffic markets around the world.

With ITS fast becoming the core of multi-modal traffic and mobility management systems, it delivers the benefit of providing real-time information access to operators of traffic management centers and end users, enabling them to make smarter, more efficient use of transportation networks. Without backup power, loss of these interfaces and critical communication devices (such as detectors, surveillance tools and wireless communications) may pose significant safety and security risks for the user and operator. The moment when communications are needed the most is often the time when there is an unexpected local power loss or interruption.

For over 35 years, Alpha's line of rugged outdoor uninterruptible power supplies (UPS) and backup power solutions have been designed by outdoor power experts to meet the stringent requirements of the traffic industry, reliably performing in the most extreme environmental conditions, including frigid temperatures, searing desert heat, snow & salt and other environmentally harsh conditions.

ALPHA OFFERS PROVEN SOLUTIONS TO FIT ANY TRAFFIC AND ITS APPLICATION:

- Outdoor and indoor UPS power modules with Ethernet/ SNMP remote monitoring and communication capabilities with the highest Mean Time to Failure Rate (MTBF)
- A wide range of weather-hardened, secure enclosures that permit flexible configuration and customization to meet specific requirements
- Automatic transfer and failsafe bypass switches that allow safe switching from utility to emergency power
- Paralleled battery configurations, stationary and portable gas-powered generators for extended run times at remote & critical locations
- Advanced gel-cell technology batteries featuring superior working life and reliability, and one of the longest battery warranties available
- Remote battery testing and diagnosis that drastically lowers maintenance time and cost.
- AlphaGuard™ battery management technology to balance and optimize battery performance
- Battery heater mats to optimize battery performance in cold climates

By implementing battery backup/UPS solutions into your traffic networks, there is the potential to:

- Save lives and eliminate severe accidents due to power outages
- Sustain power to operating systems and controller electronics until utility power is restored
- Extend life and lower repair cost up to 70% of all protected traffic electronic equipment
- Maintain traffic flow and intersection safety
- Reduce expenses by eliminating ghost service call-outs or expensive after hours calls
- Condition and regulate incoming commercial power ensuring sensitive control equipment works efficiently and experiences less damage



Alpha FXM UPS Family

Alpha's FXM family of uninterruptible power supplies (UPS) are designed to provide clean, reliable backup power for Traffic applications. Featuring an automatic voltage regulator (AVR), each FXM UPS provides power stability in varied power conditions as well as the ability to switch to emergency backup power without interrupting power to the intersection. Choose the Alpha FXM 350 and 650 for ITS, 1100 for standard signalized intersections or choose the Alpha FXM 2000 for larger intersections or railway crossings with multiple turn lights and other additional power requirements.

The factory installed Ethernet/SNMP card allows communication with the UPS remotely through any web browser and is capable of notifying up to four different email addresses. Outgoing notifications can be customized with selectable severity levels and triggered by events, faults and/or alarms.

For optimal control and performance of your UPS system, the Ethernet/SNMP card is powered by the UPS batteries' DC voltage, eliminating the need for an external power source.

Each FXM power level is available in either 120V or 230V variants, both with auto frequency detection (60Hz/50Hz). *Alpha is approved by multiple States within the US, including California Dept. of Transportation (Caltrans), Texas and many others.*

OTHER SMART FEATURES OF THE FXM FAMILY INCLUDE:

- During periods of surge or sag in the line voltage, a wider-range automatic voltage regulation means less dependence on batteries thus lengthening battery life
- Independently programmable user inputs and dry contact relays allow controlling and tracking of key functions
- Event and alarm logging with time and date stamping simplifies and accelerates troubleshooting
- A wide operating temperature range of -40 to 74°C (-40 to 165°F)¹ is suitable for extreme operating environments
- Control and power connection panels can be rotated for viewing in horizontal or vertical mounting orientations²
- Temperature compensated battery charging protects batteries from over-charging at extreme temperatures, extending the life of the battery

1. Power module only. Output power derates after 55°C (122°F) for FXM 350, 650 and 1100 and after 50°C (122°F) for FXM 2000 (120Vac), 55°C (230Vac).

2. The LCD panel on the FXM 350, 650 cannot be rotated.



FXM 350

Rugged UPS Module

- 350W/VA UPS module designed to operate in extreme environments; providing maximum flexibility while ensuring critical loads remain protected and running during outages and other power disturbances
- Unsurpassed flexibility with dual 120Vac and 24Vac outputs
- Wide range Automatic Voltage Regulation (AVR) lengthens battery life by providing protection without transferring to backup mode during voltage surge or sag
- Local and remote monitoring and control via USB port and Ethernet SNMP interface
- Temperature compensated battery charging protects batteries from overcharging or undercharging at extreme temperatures, extending the life of the battery
- Independently programmable control and report dry contacts allow monitoring and controlling of key functions

Consult your Alpha representative for P/N configurations

Electrical

➤ 120Vac Model

Battery string voltage: ...48Vdc or 24Vdc

Nominal voltage:120Vac

Frequency:60/50Hz ±5% (auto-detection)

Input:

Voltage range (w/o transferring to battery mode): 88 to 152Vac
Current:

- FXM350-24:.....5.3A
- FXM350-48:.....5.7A

Output:

Waveform:.....Pure sinewave
Nominal voltage:Dual 120Vac, 24Vac
Voltage regulation:±10%
Power at 50°C:.....350W/VA Total
• 24Vac: 260W/VA (max)
• 120Vac: 350W/VA (max)
Frequency:Output frequency = Input frequency

➤ 230Vac Model

Battery string voltage: ...24Vdc

Nominal voltage:230Vac

Frequency:60/50Hz ±5% (auto-detection)

Input:

Voltage range (w/o transferring to battery mode): 151 to 282Vac
Current:.....2.7A

Output:

Waveform:.....Pure sinewave
Nominal voltage:230Vac, 24Vac
Voltage regulation:±10%
Power at 50°C:.....350W/VA Total
• 24Vac: 260VA (max)
• 230Vac: 350VA (max)
FrequencyOutput frequency = Input frequency

Mechanical

Mounting:.....19" or 23" rack with the addition of ears for rack mounting

Dimensions:

mm:.....88.14H x 341.88W x 211.74D

inches:.....3.47H x 13.46W x 8.34D

Weight:.....8.62kg (19lbs)

Environmental

Operating temp range*:..... -40 to 74°C (-40 to 165°F)

Audible noise @ 25°C:..... <45dBA @ 1 meter (39in)

*Derates after 50°C

Performance

Typical output voltage THD:..... <3%

Typical efficiency:..... >96% (resistive load)

Typical transfer time:..... <5ms

Power Connector Options

120Vac Model

| | Input | Output |
|----------|--------------|---------------|
| Standard | | |

230Vac Model

| | Input | Output |
|----------|--------------|---------------|
| Standard | | |

Agency Compliance

Electrical safety:.....UL1778, CSA C22.2 No. 107.3; EN62040-1



Marks:.....UL, CE**
EMC:.....CFR47, Part 15 Subpart B, Class A; CES-003
Class A; EN62040-2

**CE applies to 230Vac version only



FXM 650

Rugged UPS Module

- 650W/VA UPS module designed to operate in extreme environments and provide maximum flexibility while ensuring critical loads remain protected and running during outages and other power disturbances
- Wide range Automatic Voltage Regulation (AVR) lengthens battery life by providing protection without transferring to backup mode during voltage surge or sag
- Independently programmable control and report dry contacts allow monitoring and controlling of key functions
- Temperature compensated battery charging protects batteries from overcharging or undercharging at extreme temperatures, extending the life of the battery
- Local and remote monitoring and control via RS232 port and Ethernet SNMP interface*

Consult your Alpha representative for P/N configurations

Electrical

➤ 120Vac Model

Battery string voltage: ...24Vdc or 48Vdc
Nominal voltage:120Vac
Nominal frequency:Auto-sensing
Input:

Current:.....5.8A nominal
 Voltage:85 to 175Vac

Output:

Voltage regulation:+/- 10% over input voltage range
 Power at 55°C:.....650W/VA

➤ 230Vac Model

Battery string voltage: ...24Vdc
Nominal voltage:230Vac
Nominal frequency:Auto-sensing

Input:

Current:.....3.0A nominal
 Voltage range:150 to 328Vac

Output:

Voltage regulation:+/- 10% over input voltage range
 Power at 55°C:.....650W/VA

Mechanical

Dimensions:

mm:.....88H x 432W x 229D
 inches:3.47H x 17W x 9D

Weight:11kg (25lbs)

Environmental

Operating temp range*:...-40 to 74°C (-40 to 165°F)

Audible noise @ 25°C:....45dBA @ 1 meter (39in)

*Derates after 55°C

Performance

Typical output voltage THD: <3%

Typical efficiency:..... >98% (resistive load)

Typical transfer time: <5ms

Power Connector Options

120Vac Model

| | Input | Output |
|----------|-------|----------------|
| Standard | | Terminal Block |

230Vac Model

| | Input | Output |
|----------|-------|----------------|
| Standard | | Terminal Block |

Agency Compliance

Electrical safety:.....UL1778, CSA C22.2 No. 107.3; EN62040-1



Marks:.....

EMC:.....CFR47, Part 15 Subpart B, Class A; CES-003
 Class A; EN62040-2

*Ethernet SNMP card is standard on the 120Vac model and optional on the 230Vac model

***CE applies to 230Vac version only



FXM 1100

Rugged UPS Module

- 1100W/VA UPS module designed to operate in extreme environments and provide maximum flexibility while ensuring critical loads remain protected and running during outages and other power disturbances
- Wide range Automatic Voltage Regulation (AVR) lengthens battery life by providing protection without transferring to backup mode during voltage surge or sag
- Independently programmable control and report dry contacts allow monitoring and controlling of key functions
- Temperature compensated battery charging protects batteries from overcharging or undercharging at extreme temperatures, extending the life of the battery
- Local and remote monitoring and control via RS232 port and Ethernet SNMP interface*
- UPS panels can be rotated, improving usability and viewing convenience

Consult your Alpha representative for P/N configurations

8

Electrical

>120Vac Model

Battery string voltage: ...48Vdc

Nominal voltage:120Vac

Nominal frequency:Auto-sensing

Input:

Current:.....9.8A nominal
Voltage:85 to 175Vac

Output:

Voltage regulation:+/- 10% over input voltage range
Power at 55°C:.....1100W/VA

>230Vac Model

Battery string voltage: ...48Vdc

Nominal voltage:230Vac

Nominal frequency:Auto-sensing

Input:

Current:.....5.1A nominal
Voltage range:150 to 328Vac

Output:

Voltage regulation:+/- 10% over input voltage range
Power at 55°C:.....1100W/VA

Mechanical

Dimensions:

mm:.....133H x 394W x 222D
inches:.....5.22H x 15.5W x 8.75D

Weight:16kg (35lbs)

Environmental

Operating temp range*:...-40 to 74°C (-40 to 165°F)

Audible noise @ 25°C:....45dBA @ 1 meter (39in)

*Derates after 55°C

Performance

Typical output voltage THD:<3%

Typical efficiency:>98% (resistive load)

Typical transfer time:<5ms

Power Connector Options

120Vac Model

| | Input | Output |
|----------|--------------|-----------------------------|
| Standard | | Terminal Block |
| Optional | | Terminal Block + Dual 5-15R |

230Vac Model

| | Input | Output |
|----------|--------------|----------------|
| Standard | | Terminal Block |

*FXM models with IEC connectors come with 4 lines LCD display instead of the traditional 2 lines display

Agency Compliance

Electrical safety:.....UL1778, CSA C22.2 No. 107.3; EN62040-1



Marks:.....

EMC:.....CFR47, Part 15 Subpart B, Class A; CES-003
Class A; EN62040-2

*Ethernet SNMP card is standard on the 120Vac model and optional on the 230Vac model

***CE applies to 230Vac version only



FXM 2000

Rugged UPS Module

- 2000W/VA UPS module designed to operate in extreme environments and provide maximum flexibility while ensuring critical loads remain protected and running during outages and other power disturbances
- Wide range Automatic Voltage Regulation (AVR) lengthens battery life by providing protection without transferring to backup mode during voltage surge or sag
- Independently programmable control and report dry contacts allow monitoring and controlling of key functions
- Temperature compensated battery charging protects batteries from overcharging or undercharging at extreme temperatures, extending the life of the battery
- Local and remote monitoring and control via RS232 port and Ethernet SNMP interface*
- UPS panels can be rotated, improving usability and viewing convenience

Consult your Alpha representative for P/N configurations

Electrical

>120Vac Model

Battery string voltage: ...48Vdc

Nominal voltage:120Vac

Nominal frequency:Auto-sensing

Input:

Current:.....17.9A nominal
Voltage:85 to 175Vac

Output:

Voltage regulation:+/- 10% over input voltage range
Power at 50°C:.....2000W/VA

>230Vac Model

Battery string voltage: ...48Vdc

Nominal voltage:230Vac

Nominal frequency:Auto-sensing

Input:

Current:.....9.4A nominal
Voltage range:150 to 328Vac

Output:

Voltage regulation:+/- 10% over input voltage range
Power at 55°C:.....2000W/VA

Mechanical

Dimensions:

mm:.....133H x 394W x 222D
inches:.....5.22H x 15.5W x 8.75D

Weight:16kg (35lbs)

Environmental

Operating temp range*:...-40 to 74°C (-40 to 165°F)

Audible noise @ 25°C:....45dBA @ 1 meter (39in)

*120Vac module derates after 50°C. 230Vac module derates after 55°C

Performance

Typical output voltage THD:<3%

Typical efficiency:>98% (resistive load)

Typical transfer time:<5ms

Power Connector Options

120Vac Model

| | Input | Output |
|----------|-------|----------------|
| Standard | | Terminal Block |

230Vac Model

| | Input | Output |
|----------|-------|----------------|
| Standard | | Terminal Block |

Agency Compliance

Electrical safety:UL1778, CSA C22.2 No. 107.3; EN62040-1



Marks: ***

EMC:CFR47, Part 15 Subpart B, Class A; CES-003
Class A; EN62040-2

*Ethernet SNMP card is standard on the 120Vac model and optional on the 230Vac model

***CE applies to 230Vac version only



FXM 1100 QC

FXM 1100 4 Line Display and Quick Connect IEC Plugs/Receptacle

The FXM 1100 QC UPS has all the benefits of the standard FXM UPS plus:

- Caltrans approved, TEES 2009
- 4 lines LCD display
- Resettable output circuit breaker
- Input/Output, with quick disconnects and locking device

Consult your Alpha representative for P/N configurations

Display

The LCD control panel provides "at a glance" monitoring. This panel when used along with the CANCEL, SCROLL and SELECT buttons, allows you to program, make measurements, and troubleshoot the Alpha FXM.



LCD Screen

- A.** IP: Input voltage reading
- B.** OUT: Output voltage reading
- C.** FLT: Battery voltage when not charging
CHR: Battery voltage when charging
- D.** BAT: Battery capacity (0-100%)
- E.** Present operating mode (Line mode shown)
- F.** Text "ALARM" flashes if alarm triggered
- G.** RELAY: Energized relays numbers
- H.** Text "FAULT" flashes if fault triggered

Electrical

> 120Vac Model

- Battery string voltage:** ...48Vdc
- Nominal voltage:**120Vac
- Nominal frequency:**Auto-sensing
- Input:**
 - Current:.....9.8A nominal
 - Voltage:85 to 175Vac
- Output:**
 - Voltage regulation:+/- 10% over input voltage range
 - Power at 50°C:.....1100W/VA

Mechanical

Dimensions:

mm:.....133H x 394W x 222D
inches:5.22H x 15.5W x 8.75D

Weight:16kg (35lbs)

Environmental

Operating temp range*: -40 to 74°C (-40 to 165°F)

Audible noise @ 25°C: ...45dBA @ 1 meter (39in)

*Derates after 55°C

Performance

Typical output voltage THD:<3%

Typical efficiency:>98% (resistive load)

Typical transfer time:<5ms

Power Connector Options

120Vac Model

| Input | Output |
|-------|--------|
| IEC* | IEC* |

*FXM models with IEC connectors come with 4 lines LCD display instead of the traditional 2 lines display

Agency Compliance

Electrical safety:UL1778, CSA 22.2 No 107.3-03

Marks:

EMI:Class A FCC/CISPR
[EN 50091-2:1995]

*Ethernet SNMP card is standard on the 120Vac model and optional on the 230Vac model

FXM/Micro Communication Card

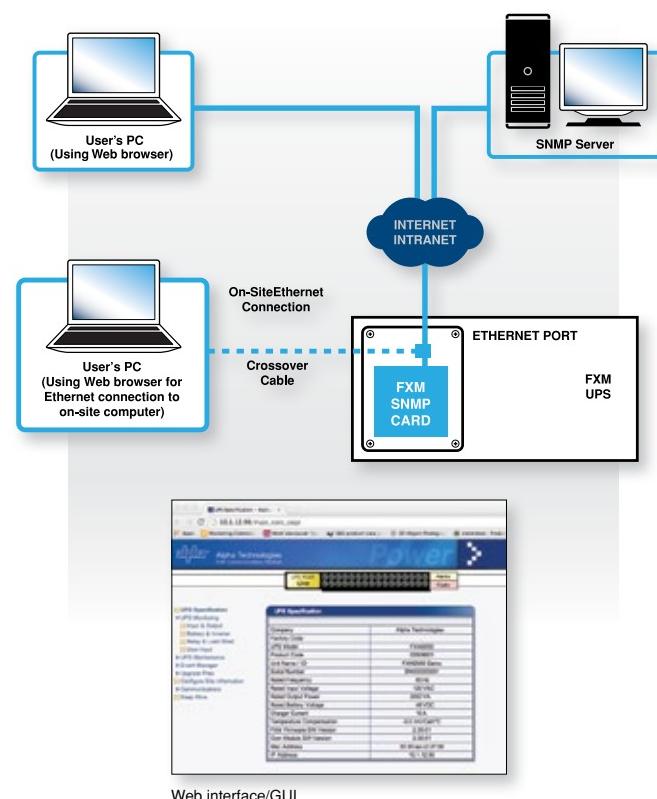


ETHERNET/SNMP (SIMPLE NETWORK MANAGEMENT PROTOCOL) CARD

For greater effectiveness, control and communication over your UPS system, the Ethernet/SNMP card is factory installed and allows for communication with the Alpha UPS remotely through a web based interface. The Ethernet/SNMP card is powered by the UPS batteries eliminating the need for an external power source. The communication card is capable of providing notifications to four different email addresses. Outgoing notifications can be customized with selectable severity levels and triggered by events, faults and/or alarms.

ADVANTAGES OF USING SIMPLE NETWORK MANAGEMENT PROTOCOL

- SNMP allows an administrator to easily and simultaneously manage key remote devices from different vendors using the same tools and interface, lessening the need for truck rolls to sites that require constant monitoring
- SNMP offers long-term reporting capabilities, allowing monitoring for network trends over time and to take remedial action
- Triggered notifications such as e-mail can be used to alert administrators of alarms or system updates
- The ability to update firmware remotely and monitor another device and reset it (by cycling its power) if it does not respond to a query
- The Traffic Management Center (TMC) can communicate remotely with each UPS at all intersections

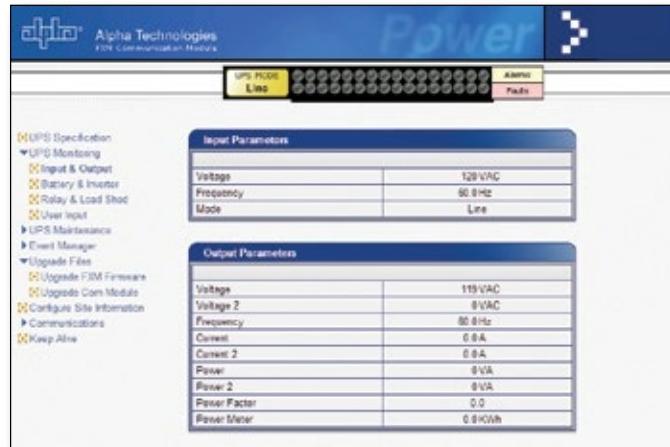


Web interface/GUI

The card provides a web based graphical user interface (GUI) designed to help Alpha FXM/Micro UPS users monitor, control and set various parameters. With a computer and a crossover RJ-45 cable, users are able to see UPS parameters, relay configurations, events and warnings through a web browser. It is an excellent maintenance and troubleshooting tool that updates information every 5 seconds and logs 200 events with time and date stamp. The UPS event log can be saved to a PC via RS232 using Alpha UPS Monitor Software.

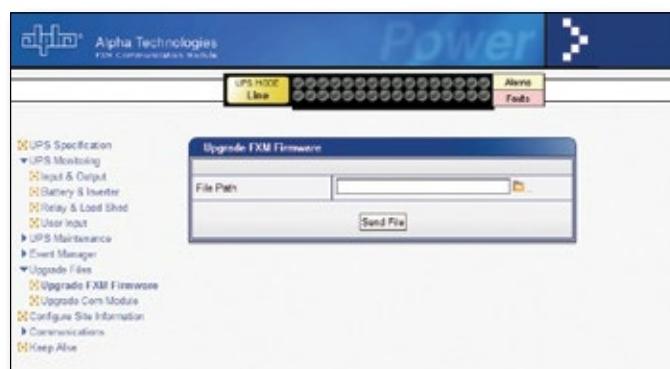
Get real-time notification of every alarm and fault that occurs so you can respond proactively. Easy to customize, it allows you to set your own notification preferences and receive it on any PC, smartphone or a tablet that can receive email.

Remote Monitoring Capability



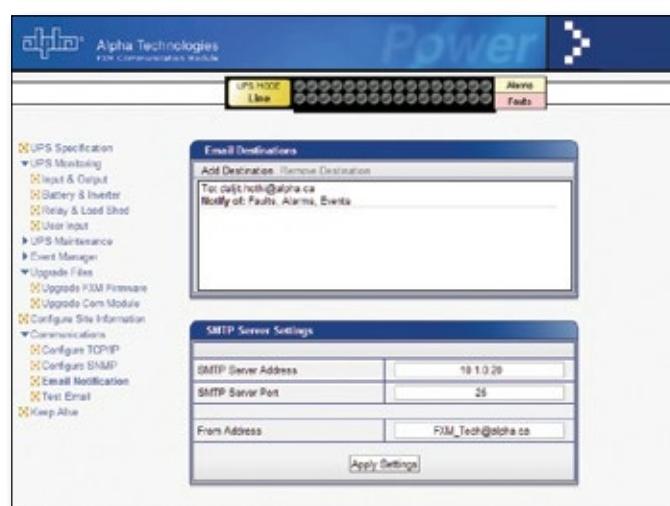
REMOTE STATUS AND MONITORING

FXM input/output and battery parameters can be viewed as well various setting can be updated remotely. Dry contact configuration can be viewed or changed based on site or user requirements.



FIRMWARE UPDATES

Both FXM firmware and SNMP card software can be upgraded remotely via web page*. Costly truck rolls can be avoided and new feature can be implemented with ease.



EMAIL NOTIFICATION

User can set up automatic email notification for status change, events or faults to remotely manage sites and to respond in a timely manner proactively.

*Units with blue LCD. Older units has to be upgraded locally once to implement this feature.

Alpha Transfer Switches

Outdoor Solutions



UNIVERSAL AUTOMATIC TRANSFER SWITCH

- 120V/30A
- 230V/16A

Alpha's Universal Automatic Transfer Switch is designed as a three stage bypass switch that allows for the UPS to be bypassed and still maintain the ability to keep batteries fully charged.

It acts as a fail-safe device by switching the critical load to the utility line should a fault occur in the UPS. The UATS ensures that clean power is always provided to the critical load, ensuring that your mission-critical equipment always remains running in the event of an outage. This transfer switch also includes a standard manual bypass switch which eliminates costly equipment downtime while servicing the UPS or replacing the batteries.

Dimensions:

mm: 81H x 135W x 152D

inches: 3.25H x 5.3W x 6.0D

Mounting options:

Wall, shelf or single side rack mount



UNIVERSAL AUTOMATIC GENERATOR TRANSFER SWITCH

- 120V/30A
- 230V/16A

Alpha's Universal Automatic Generator Transfer Switch automatically transfers the input to the UPS from the utility line to a portable AC generator.

The UGTS allows the generator to recharge the batteries and ensure your mission - critical equipment remains in operation during extended power outages. For manually connecting or disconnecting a generator, a standard switch is included.

Dimensions:

mm: 81H x 135W x 152D

inches: 3.25H x 5.3W x 6.0D

Mounting options:

Wall, shelf or single side rack mount



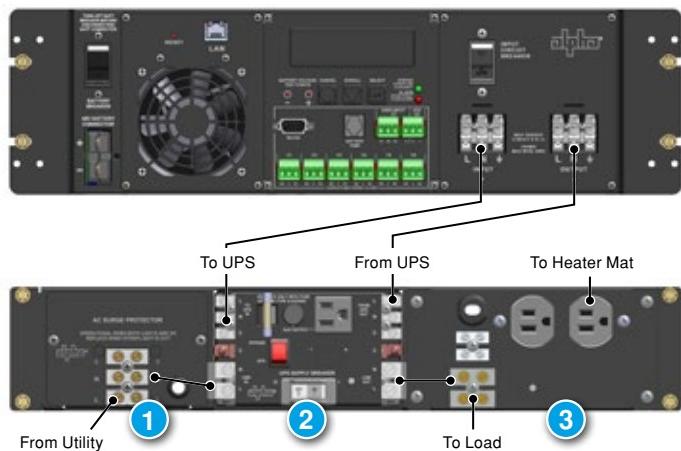
19/23 RACK MOUNT CONFIGURATIONS

Rack mount options can be configured with Surge block, UGTS, UATS or a receptacle plate for powering optional battery heater mats.

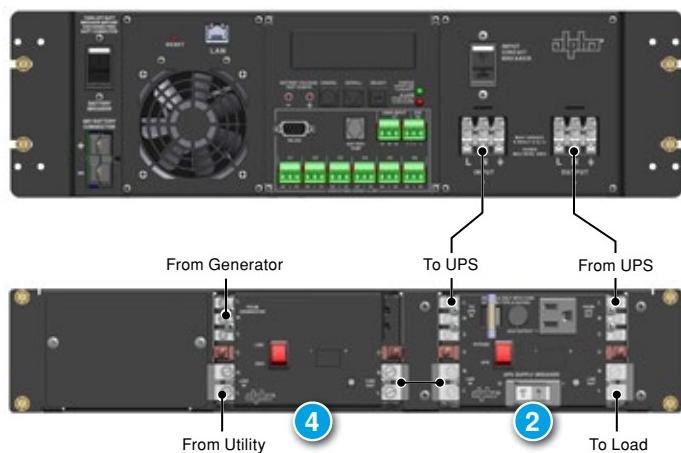
Alpha Transfer Switches

Configurations

Option 1



Option 2



19" rack mount shelf option is offered in few different configurations based on application. In option 1 is preconfigured with surge arrestor, UATS and receptacle plate assembly. In option 2 assembly comes preconfigured with UGTS and a UATS.

Other configurations are available.

Consult your Alpha representative for P/N

1 SURGE ASSEMBLY

The Surge Assembly comes with a UL listed Type 1 Surge Protection Device suitable for use on:

- Surge Entrance
- Distribution panels
- Point of use application

2 UNIVERSAL AUTOMATIC TRANSFER SWITCH

The UATS ensures continuous operation of your systems either with conditioned line power, battery backup power or power direct from the line should the UPS require maintenance.

3 RECEPTACLE PLATE

The receptacle plate provides connection point for UPS backed up customer load, internal enclosure AC lamp and convenience receptacle for non-critical loads like battery heater mats.

4 UGTS

The Universal Automatic Generator Transfer Switch (UGTS) automatically transfers the input to the UPS from the utility line to a portable AC generator. The UGTS allows the generator to recharge the batteries and power your systems during extended power outages.

Alpha Enclosure Solutions

Alpha offers a complete line up of NEMA 3R traffic enclosures both in aluminum and stainless steel that are designed and tested to meet the highest industry operating standards. Each enclosure maintains a clean and dry environment ensuring an extended life and enhanced reliability of the power electronics and batteries. Alpha enclosures provide application flexibility with a variety of mounting options, choice of enclosure color, thermal management solutions, security level, generator connectivity, heaters and many other options and features. When an Alpha outdoor enclosure is combined with either an FXM Outdoor AC UPS or Cordex DC power system and AlphaCell batteries, the result is an optimally designed, highly-reliable and efficient outdoor power system that provides easy installation and long term operation.

TE27-2218 is a cost-effective and versatile traffic enclosure solution ideal for space constrained intersections. The cabinet can be pole, host, wall, or pedestal mounted and can accommodate Alpha's FXM UPS and up to four AlphaCell™ 85GXL or 195 GXL front terminal batteries. With a small form factor, the TE27-2218 is the perfect choice for intersections where limited real estate and need for discretion are key challenges.

SE41-2722 is a configurable-to-order system suitable for ITS applications. The cabinet provides up to 20RU of total equipment space for power, batteries, accessory panel and customer equipment. Flexible thermal management solutions (including fan, heat exchanger and air conditioning variants) enable convenient matching to load and environmental parameters.

SE48-1616 is one of the most popular traffic enclosures sold today. It is designed to accommodate an FXM UPS module, transfer switches and four (4) AlphaCell 220 GXL batteries (BCI Group 31), with additional room for other components. Thermostat controlled fan and louvered vents ensure reliable operation of the system in high temperature environments. SE48-1616 is available in multiple colors to meet DOT requirements for the state, county or the city.

SE48-2216 is a new addition to the Alpha traffic enclosure line up. The enclosure design is based on the popular SE48-1616 enclosure but with one main difference being width. The SE48-2216 is designed to accommodate a FXM UPS module, transfer switches and four (4) AlphaCell 220 GXL batteries (BCI Group 31), with additional room for other components. Thermostat controlled fan and louvered vents ensure reliable operation of the system in high temperature environments.

SE48-1909 is a battery only enclosure designed to hold four (4) AlphaCell 220 GXL batteries (BCI Group 31). It is rated for NEMA 3R protection for the batteries from outdoor elements. The SE48-1909 is a cost-effective method of adding 48Vdc standby capacity to any existing ground mount enclosure where there is no room inside the existing traffic enclosure for the batteries.

TE27-2218 (Formerly MMOE)

27" General Purpose Outdoor Traffic Enclosure



- Traffic grade aluminum enclosure protects battery backup power systems from outdoor elements
- Various mounting options (including pole-mount) provide a flexible solution for space constrained traffic applications
- Large sun shield reduces solar heat load inside cabinet
- Thermostat controlled fan and louvered vents ensure reliable operation in high temperatures
- 180° stainless steel piano-hinged door makes installation and maintenance easy and convenient
- Three-point latching mechanism with Corbin Type 2 lock for maximum security

Consult your Alpha representative for P/N configurations

Mechanical

Dimensions:

mm:.....687H x 559W x 457D
inches:.....27H x 22W x 18D

Weight:.....27.2kg (60lbs)

Construction:.....High strength corrosion resistant 0.125" thick aluminum

Finish:.....Natural aluminum or painted gray

Equipment space:.....7RU space with one battery shelf

Equipment rails:.....EIA standard 19"

Cable entrance:

Bottom of enclosure:1 x 3" diameter knock-out (2½" trade size)
4 x 1.125" diameter knock-out (¾" trade size)
Rear of enclosure:4 x 1.125" diameter knock-out (¾" trade size)

Hardware

Hinge type:.....Stainless steel piano hinge

Door prop:.....Aluminum rod, 2 locking open positions

Door latch:.....3 point latch with integrated Corbin Type 2 lock

HVAC

Cooling:.....Thermostat controlled 48Vdc fan, 100 cfm or better, ON at 49°C (120°F) Off at 32°C (89°F)

Ventilation:.....Door installed louvers

Environmental

Temperature:

Operating:-40 to 46°C (-40 to 115°F)
Storage:-40 to 85°C (-40 to 185°F)

Installation

Access:.....Front hinged door provides full front access

Maintenance

Door installed louver:.....Equipped with washable filter

Enclosure Options

Mounting:.....Pole, host, wall, or pedestal

System Specifications (as shown)



- Battery shelf with 4x AlphaCell™ 85GXL batteries
- FXM2000 UPS
- Universal automatic transfer switch

➤ System Options

- Universal generator transfer switch
- AlphaGuard battery balancer
- Battery heater mats
- Transient voltage surge suppression device

Agency Compliance

NEMA rating:.....3R

SE41-2722

41" General Purpose Outdoor Enclosure



- Configurable-to-order outdoor enclosure designed for ITS applications
- 23" mounting rails with adjustable front to back rack angles (23" to 19" adapter plates available as an option)
- 20RU of available equipment space for power, batteries, accessory panel and customer equipment
- Rear access gland plate provides greater flexibility to access customer installed equipments
- Flexible thermal management solutions (including fan, heat exchanger and air conditioning variants) enable convenient matching to load and environmental parameters
- Various mounting options available: wall, pole, plinth and pad

Consult your Alpha representative for P/N configurations

Mechanical

Dimensions:

mm:.....1051H x 701W x 559D
inches:.....41.4H x 27.6W x 22D

Weight:.....52kg (115lbs)

Construction:.....High strength corrosion resistant aluminum

Finish:.....Powdercoat

Equipment rails:.....23" (23" to 19" adapter plates available as option)

Equipment space:.....20RU

Cable entrance:.....Knockouts located on sides, bottom and rear of enclosure

Hardware

Hinge type:.....3-position lift-off hinge

Door prop:.....Wind-stop with automatic lock

Door latch:.....3 point latch with padlockable L-handle

HVAC

Cooling:.....Thermostat controlled filtered fan cooling
Air Conditioner (120VAC, 2000 BTU/hr)
Heat Exchanger (48Vdc, 50W/C)

Heating:.....Integrated with Air Conditioner (500W)

Environmental

Temperature:

Operating:-40 to 46°C (-40 to 115°F)
Storage:-40 to 85°C (-40 to 185°F)

Installation

Access:.....Full front access as well as rear access with a removable gland plate

Enclosure Options

Mounting:

SE41-2722:.....Wall, pole, plinth and pad

Agency Compliance

NEMA rating:.....3R

CSA:.....C22.2 No. 60950



SE48-1616 (Formerly S6)

48" Outdoor Traffic BBS Enclosure



- Traffic grade aluminum enclosure protects battery backup power systems (BBS) from outdoor elements
- Various mounting options (including pole-mount) provide a flexible solution for traffic applications
- Large sun shield reduces solar heat load inside the cabinet
- Thermostat controlled fan and louvered vents ensure reliable operation in high temperatures
- 180° stainless steel piano hinged door with two locking open positions makes internal component installation and maintenance easy and convenient
- Three-point latching mechanism with Corbin Type 2 lock (or optional Best lock) for maximum security
- 5-Year "No Worries" Warranty providing full coverage of your Alpha S6 enclosure system*

Consult your Alpha representative for P/N configurations

Mechanical

Dimensions:

mm:.....1220H x 419W x 419D
inches:.....48H x 16.5W x 16.5D

Weight:

.....34kg (75lbs)

Construction:

.....High strength corrosion resistant aluminum

Finish:

.....Natural aluminum

Equipment space:

.....8RU space (without generator inlet) with two (2) battery shelves

Equipment rails:

.....EIA standard 19" (vertical)

Cable entrance:

.....Bottom of enclosure: 1 x 76mm (3") dia. knock-out

Hardware

Hinge type:

.....Stainless steel piano hinge

Door prop:

.....Aluminum rod, 2 locking open positions

Handle:

.....Stainless steel handle with padlock fitting for extended life and improved look

Door latch:

.....3 point latch with integrated Corbin Type 2 lock (or optional Best lock) for maximum security

HVAC

Cooling:

.....Thermostat controlled 48Vdc fan, 100 cfm or better, ON at 49°C (120°F) Off at 32°C (89°F)

Ventilation:

.....Door installed louvers

Environmental

Temperature:

Operating:-40 to 46°C (-40 to 115°F)

Storage:-40 to 85°C (-40 to 185°F)

Installation

Access:

.....Removable bottom shelf for easy wiring access

Maintenance

Door installed louver:

.....Equipped with washable filter

Other:

.....Bug screen protected top vent

Enclosure Options

Mounting:

.....Side mount (standard) - designed to mount to

the side of most traffic enclosure cabinets

.....Ground mount kit (optional)

.....Pole mount kit (optional)

System Specifications (as shown)

- 2 Battery shelf with 4x AlphaCell 220GXL batteries

- FXM1100 UPS

- Universal automatic transfer switch

- Universal generator transfer switch

System Options

- Generator support: locking generator access door and L5-30 F1 plug

- Tamper switch

- Tilt switch

- AlphaGuard™ battery balancer

- Door activated interior light

- Battery heater mats

- "On Battery" indicator light

Agency Compliance

CSA/UL, CE:

.....UL50E/C22.2 No.94

NEMA rating:

.....3R

* The 5 Year "No Worries" Warranty applies to bundled systems consisting of at least an Alpha S6 enclosure, an Alpha FXM UPS module and AlphaCell GEL batteries.



SE48-2216

48" General Purpose Outdoor Traffic Enclosure

- Traffic grade aluminum enclosure protects battery backup power systems (BBS) from outdoor elements
- Various mounting options (including pole-mount) provide a flexible solution for traffic applications
- Large sun shield reduces solar heat load inside the cabinet
- Thermostat controlled fan and louvered vents ensure reliable operation in high temperatures
- 180° stainless steel piano hinged door with two locking open positions makes internal component installation and maintenance easy and convenient
- Three-point latching mechanism with Corbin Type 2 lock (or optional Best lock) for maximum security

Consult your Alpha representative for P/N configurations

Mechanical

Dimensions:

mm:.....1220H x 559W x 419D
inches:.....48H x 22W x 16.5D

Weight:.....41kg (90.3lbs)

Construction:.....High strength corrosion resistant aluminum

Finish:.....Natural aluminum

Equipment space:.....11RU space (without generator inlet) with two (2) battery shelves

Equipment rails:.....EIA standard 19" (vertical)

Cable entrance:.....Bottom of enclosure: 1 x 76mm (3") dia. knock-out

Hardware

Hinge type:.....Stainless steel piano hinge

Door prop:.....Aluminum rod, 2 locking open positions

Handle:.....Stainless steel handle with padlock fitting for extended life and improved look

Door latch:.....3 point latch with integrated Corbin Type 2 lock (or optional Best lock) for maximum security

HVAC

Cooling:.....Thermostat controlled 48Vdc fan, 100 cfm or better, ON at 49°C (120°F) Off at 32°C (89°F)

Ventilation:.....Door installed louvers

Environmental

Temperature:

Operating: -40 to 46°C (-40 to 115°F)
Storage: -40 to 85°C (-40 to 185°F)

Installation

Access:.....Removable bottom shelf for easy wiring access

Maintenance

Door installed louver:.....Equipped with washable filter

Other:.....Bug screen protected top vent

Enclosure Options

Mounting:.....Side mount (standard) - designed to mount to the side of most traffic enclosure cabinets
Ground mount kit (optional)
Pole mount kit (optional)

Agency Compliance

NEMA rating:.....3R

SE48-1909 (Formerly BSM4)

Battery Side Module for Existing Enclosures



- Traffic grade aluminum enclosure protects batteries from outdoor elements
- Cost-effective method of adding 48Vdc standby capacity to any existing ground mount enclosure
- Engineered to minimize temperature differential between batteries
- Available in natural aluminum finish

Consult your Alpha representative for P/N configurations

Mechanical

Dimensions:

mm:.....1220H x 495W x 222D
inches:.....48H x 19.5W x 8.75D

Weight:.....17.3kg (38lbs)

Construction:.....0.125" High strength aluminum

Finish:.....Natural aluminum

Equipment space:.....Accommodates 4xAlphaCell 220GXL
(Case 31) batteries

Hardware

Door latch:.....Corbin lock for maximum security

HVAC

Ventilation:.....Louvered vents on front door

Installation

Access:.....Lift-off front door provides easy wiring access

Agency Compliance

NEMA rating:.....3R





AlphaCell™ GXL

Gel Top-Terminal Batteries

- High-performance silver alloy for maximum life expectancy
- Longer runtime for demanding outdoor environments
- 100% runtime capacity out-of-box – No cycling required
- Maintenance-free threaded inserts – No periodic retorquing
- Available with 4 and 5 year full warranties*
- Wide operating temperature range

Nominal Specifications

| Model | 220 GXL | 195GXL | 165GXL | 85GXL-HP | | | | | | | | | |
|--|--|--|---|---|------|------|------|------|------|------|------|------|------|
| P/N | 181-231-10 | 181-230-10 | 1810015 | 181-213-10 | | | | | | | | | |
| Warranty* | 4 to 5 years full replacement | | | | | | | | | | | | |
| Service life | Extended | | | | | | | | | | | | |
| Battery type | True gel cell and silver alloy grid battery technologies | | | | | | | | | | | | |
| Heat resistant | Extreme | | | | | | | | | | | | |
| Hydrogen emission | Low | | | | | | | | | | | | |
| Capacity at 20hrs (to 1.75VPC) | 109Ah | 100Ah | 86Ah | 50Ah | | | | | | | | | |
| BCI group size | 31 | 31 | 27 | 22 | | | | | | | | | |
| Terminals | Threaded insert 1/4 to 20 UNC | | | Threaded insert 10-32 UNF | | | | | | | | | |
| Cells per unit | 6 | 6 | 6 | 6 | | | | | | | | | |
| Voltage per unit | 12.8V | 12.8V | 12.8V | 12.8V | | | | | | | | | |
| Conductance value | 960-1400 | 880-1320 | 800-1200 | 480-720 | | | | | | | | | |
| Impedance @ 60Hz (Ohms) | 0.005 | 0.005 | 0.0055 | 0.0065 | | | | | | | | | |
| Max. discharge current | 900A | 900A | 800A | 600A | | | | | | | | | |
| Short circuit current | 2800A | 2600A | 2500A | 2200A | | | | | | | | | |
| 10 second volts @ 100A | 11.4 | 11.3 | 11.2 | 10.8 | | | | | | | | | |
| Mechanical | | | | | | | | | | | | | |
| Dimensions w/terminals | mm inches | 215.4H x 340.9W x 172.7D 8.48H x 13.42W x 6.80D | 215.4H x 340.9W x 172.7D 8.48H x 13.42W x 6.8D | 204.5H x 317.8W x 173.4D 8.05H x 12.5W x 6.83D | | | | | | | | | |
| Weight | 33.2kg (73lbs) | 30.5kg (67lbs) | 28.6kg (63lbs) | 18kg (39.6lbs) | | | | | | | | | |
| Environmental | | | | | | | | | | | | | |
| Discharge | -40 to 71°C (-40 to 160°F) | | | | | | | | | | | | |
| Charge (w/temperature compensation) | -23 to 60°C (-9.4 to 140°F) (Charger temp comp @ ±5mV/C per °C) | | | | | | | | | | | | |
| Float charging voltage | 13.5 to 13.8Vdc | | | | | | | | | | | | |
| AC ripple charger | 0.5% RMS or 1.5% of float charge voltage recommended for best results. Max. allowed = 4%V pk to pk | | | | | | | | | | | | |
| Current discharge ratings table in Amps (end voltage 1.75VPC @ 25°C/77°F) | | | | | | | | | | | | | |
| Hours | 1 | 2 | 3 | 4 | 6 | 8 | 10 | 12 | 20 | 24 | 48 | 72 | 100 |
| 220GXL | 67.7 | 40.4 | 29.1 | 22.9 | 16.1 | 12.6 | 10.2 | 8.7 | 5.5 | 4.6 | 2.4 | 1.6 | 1.2 |
| 195GXL | 65.1 | 37.4 | 26.8 | 21 | 14.8 | 11.5 | 9.5 | 8 | 5 | 4.3 | 2.2 | 1.5 | 1.1 |
| 165GXL | 55.9 | 32.8 | 23.5 | 18.4 | 12.9 | 10 | 8.2 | 6.9 | 4.3 | 3.7 | 1.9 | 1.3 | 0.9 |
| 85GXL | 33.2 | 18.8 | 13.3 | 10.4 | 7.34 | 5.70 | 4.68 | 3.97 | 2.50 | 2.12 | 1.11 | 0.76 | 0.56 |

*Warranty varies by country and region. Warranty valid only when used with Alpha approved power supplies, chargers and enclosures in US/Canada. 5 years warranty when purchased in conjunction with AlphaGuard. Consult your salesperson or manual for details.



AlphaCell™ Gold HP

GOLD-HP GelCell Batteries

- High-performance Silver Alloy for maximum life expectancy
- Longer runtime for demanding outdoor environments
- 100% runtime capacity out-of-box – No cycling required
- Maintenance-free threaded inserts — No periodic retorquing
- Available with 5 and 6 year full warranties¹
- Wide operating temperature range

Nominal Specifications

| Model | 220 GOLD-HP | 195 GOLD-HP |
|---|--|--|
| P/N | 181-233-10 | 181-232-10 |
| Warranty ¹ | 5 to 6 year ² full replacement | 5 to 6 year ² full replacement |
| Service life | Extended | Extended |
| Sealed VRLA | Valve regulated lead acid | Valve regulated lead acid |
| Heat resistant | Extreme | Extreme |
| Hydrogen emission | Low | Low |
| Terminals | Threaded insert 1/4" - 20 UNC | Threaded insert 1/4" - 20 UNC |
| Cells per unit | 6 | 6 |
| Voltage per unit | 12.8 | 12.8 |
| Conductance value | 960-1400 | 880-1320 |
| Max. discharge current | 900A | 900A |
| Short circuit current | 2800A | 2600A |
| 10 Second volts @ 100A | 11.4 | 11.3 |
| Impedance @ 60Hz (Ohms) | 0.0050 | 0.0050 |
| Nominal capacity at 20hrs: (to 1.75VPC) | 109Ah | 100Ah |
| Nominal capacity at 20hrs: (to 1.70VPC) | 110Ah | 102Ah |
| BCI Group Size | 31 | 31 |
| Mechanical | | |
| Dimensions w/terminals | mm inches | 215.4H x 340.9W x 172.7D 8.48H x 13.42W x 6.80D |
| Weight | 33.2kg (73lbs) | 30.5kg (67lbs) |
| Environmental | | |
| Discharge | -40 to 71°C (-40 to 160°F) | |
| Charge (with temp compensation) | -23 to 60°C (-9.4 to 140°F) | |
| Float charging voltage | 13.5 to 13.8Vdc (Charger temp comp @ ±5mV/C per °C) | |
| AC ripple charger | 0.5% RMS or 1.5% of float charge voltage recommended for best results. Max. allowed = 4% P-P | |

1. Warranty varies by country and region. Warranty valid only when used with Alpha approved Power Supplies, Chargers and Enclosures. Consult your sales person for details.
2. The Gold-HP warranty is 6 years when purchased in conjunction with AlphaGuard™ Charge Management, and 5 years if AlphaGuard Charge Management is not used.



AlphaCell™ XTV

AGM Top-Terminal Batteries

- Extreme temperature resistant Absorbed Glass Mat (AGM) technology
- Better cold temperature performance for outdoor applications
- Longer runtimes help increase network reliability
- Multiple models provide options for all network architectures
- Power density gains allow more runtime from smaller sized battery
- Extended service life for non-temperature controlled outdoor enclosures
- Full 5-year replacement warranty¹

Nominal Specifications

| Model | 100XTV | 150XTV | 195XTV | 240XTV | | | | | | |
|--|--|---|--|--|--|------|------|------|-----|-----|
| P/N | 1810226 | 1810227 | 1810228 | 1810229 | | | | | | |
| Warranty ¹ | 5-year full replacement | | | | | | | | | |
| Operating Temperature Range (w/Temperature Compensation) | -40 to 60°C (-40 to 140°F) (charger temperature compensation @ $\pm 3.3\text{mVpc}$ per °C) | | | | | | | | | |
| Storage Temperature | -10 to 40°C (14 to 104°F) | -10 to 40°C (14 to 104°F) | -10 to 40°C (14 to 104°F) | -10 to 40°C (14 to 104°F) | | | | | | |
| Self Discharge | Battery can be stored up to 12 months at 25°C (77°F). Higher temperatures during storage will require more frequent recharge. | | | | | | | | | |
| Voltage Per Unit | 12V | 12V | 12V | 12V | | | | | | |
| Float Charge Voltage | 13.5 to 13.8Vdc average per 12V unit at 25°C (77°F) | | | | | | | | | |
| Refresh/Boost Charging Voltage | 14.4 to 15.0Vdc average 12V unit at 25°C (77°F) | | | | | | | | | |
| Maximum AC Ripple (Charger) | 0.5% RMS or 1.5% of float recommended for best results. Maximum voltage allowed = 4% P/P | | | | | | | | | |
| Terminal Type | Threaded alloy insert terminal to accept M6 x 12mm bolt | Threaded alloy insert terminal to accept M6 x 20mm bolt | | | | | | | | |
| Terminal Hardware Torque | 13.6NM / 120in-lbs | 13.6NM / 120in-lbs | 13.6NM / 120in-lbs | 13.6NM / 120in-lbs | | | | | | |
| Case Sizes | 22NF | 24 | 27 | 31 | | | | | | |
| Mechanical | | | | | | | | | | |
| Dimensions w/terminals | mm inches | 207H x 138W x 228D 8.17H x 5.46W x 9.01D | 214H x 168W x 275D 8.44H x 6.65W x 10.85D | 214H x 322L x 169W 8.43H x 12.71L x 6.67W | 217H x 343L x 170W 8.57H x 13.50L x 6.71W | | | | | |
| Weight | 17.7kg (39lbs) | 25.4kg (56lbs) | 30.5kg (67lbs) | 32kg (75lbs) | | | | | | |
| Battery | | | | | | | | | | |
| Amp Hour Capacity 20Hr Rate (@ 25°C/77°F to 1.75Vpc) | 56Ah | 80Ah | 100Ah | 110Ah | | | | | | |
| Conductance Range Fully Charged New Battery (@ 25°C/77°F) | 700 - 800 | 900 - 1100 | 1050 - 1250 | 1250 - 1550 | | | | | | |
| Current Discharge Ratings Table in Amps (end Voltage 1.75VPC @ 25°C/77°F) | | | | | | | | | | |
| Hours | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 20 |
| 100XTV | 39.4 | 22.1 | 15.8 | 12.4 | 10.3 | 8.7 | 6.7 | 5.4 | 4.6 | 2.8 |
| 150XTV | 53.0 | 30.6 | 21.6 | 16.8 | 13.9 | 11.9 | 9.3 | 7.7 | 6.5 | 4.0 |
| 195XTV | 65.5 | 37.6 | 26.9 | 21.0 | 17.3 | 14.7 | 11.3 | 9.4 | 7.9 | 5.0 |
| 230XTV | 75.6 | 42.5 | 30.3 | 23.9 | 19.5 | 16.5 | 12.8 | 10.4 | 8.8 | 5.5 |

1. Warranty varies by country and region. Warranty valid only when used with Alpha approved power supplies, chargers and enclosures in US/Canada. Consult your salesperson or manual for details.

Remote Battery Management System

Real-Time Measurement and Control



- Alpha's advanced battery monitoring & management system that offers a more intelligent and cost effective means of determining battery replacement
- Remotely monitor the state of health of individual batteries in 1 or 2 48Vdc strings reducing unnecessary PM site visits
- Intelligent equalization technique addresses cell charge individually, as compared to overcharging an entire string
- Automatic data logging function records individual battery voltage, temperature and admittance, eliminating the need for manual data logging and analysis (requires optional Lookout SNMP monitoring & management software)
- Built-in web server allows for convenient read-only monitoring from any computer on the network
- Main hardware components include a site controller with sensor interface module and battery sensors

Consult your Alpha representative for P/N configurations

Specifications

Input voltage:

Site controller:.....30 - 90Vdc
(Powered directly from the battery bank)

Battery sensor module:12Vdc

Number of battery strings:2 strings (8 batteries)

Measurements:Voltage, temperature & admittance



12Vdc Battery sensor module

PowerAgent
Battery Monitoring System

Site Name: Battery Monitor System Single String Display, String 1
String 1

[Previous String](#) [Return to Overview Display](#) [Next String >](#)

| Voltage, Admittance | |
|---------------------|-------------------|
| Jar 1 | 12.031 VDC, 444 S |
| Jar 2 | 12.031 VDC, 450 S |
| Jar 3 | 11.969 VDC, 414 S |
| Jar 4 | 11.969 VDC, 408 S |

A Discharge Status: Normal

String Status: Normal - LV

A String Voltage: 48.0 VDC

A Jar Voltage Delta: 0.002 VDC

A Sensor Conn: Normal

Updated: 21:52:08 7-3-2008

PowerAgent
Battery Monitoring System

Site Name: Battery Monitor System
Site Location: Default Site Location

Overview Display

| String Name | String Voltage | String Status - Type |
|-------------|----------------|-------------------------|
| String 1 | 48.0 VDC | Normal - LV |
| String 2 | 0.0 VDC | Not Connected - Unknown |

Voltages from Battery Cable

| String Voltage | String A |
|----------------|----------|
| 47.92 VDC | |

Auxiliary Output

On (Low)
 Off (High)

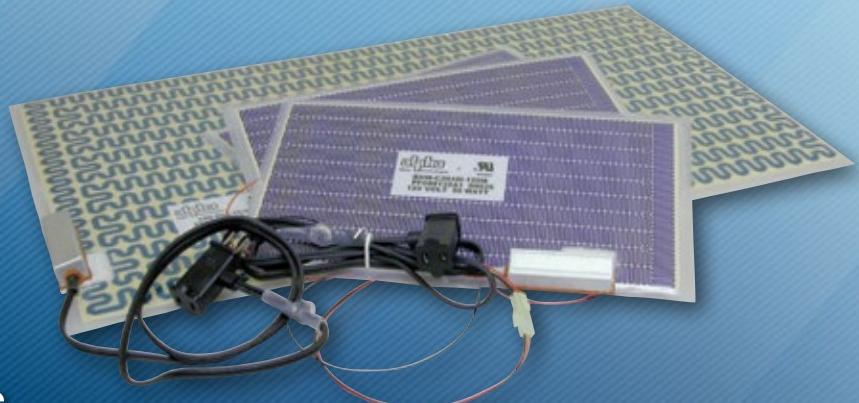
A Line Voltage: 0 VAC
A Temperature: 26 C. (78 F)
A AC Current: 0.00 AC Amps
A Moisture Sensor: Disabled
A Auxiliary Input 1: Off (High)
A Auxiliary Input 2: Off (High)

Admittance Measurement Interval: 24 Hours

Site Setup
System Up Time: 08:31:16 D/H/M/S
Firmware Version: V0120, 2.0
Updated: 20:54:13 7-3-2008

Site Controller Time: 02:13 11-1-2008
Site Controller MAC Address: 0-20-4a-15-7-73
20:54:13 7-3-2008

Built-in web server allows for convenient read-only monitoring from any computer on the network



Battery Heater Mats

Extend Battery Runtime in Cold Weather

- Durable polyester construction
- Sealed on-mat electronics for maximum protection
- On-mat thermal switch and thermal fuse for redundant safety
- Insulated design directs heat to the batteries not the enclosure for a 30% reduction in power consumption
- Piggyback plug standard on 120V models

The main power connector (1) on the heater mat is plugged into an AC source. In low temperature conditions the main control thermistor (2) will allow power to flow to the heater mat coil (5). The thermistor is mounted on the power cord so that it reacts to the enclosure temperatures and not the mat surface temperature. A secondary thermistor (3) is mounted on the mat with significantly higher temperature settings than the main thermistor (2). This thermistor keeps the mat from overheating during extended run periods. A thermal fuse (4) is a final fail safe device. The power connector (1) has an AC receptacle so that additional mats can be plugged in. Its parallel wiring keeps the failure of the first mat from affecting the operation of others in the string.

Line Cord Thermostat

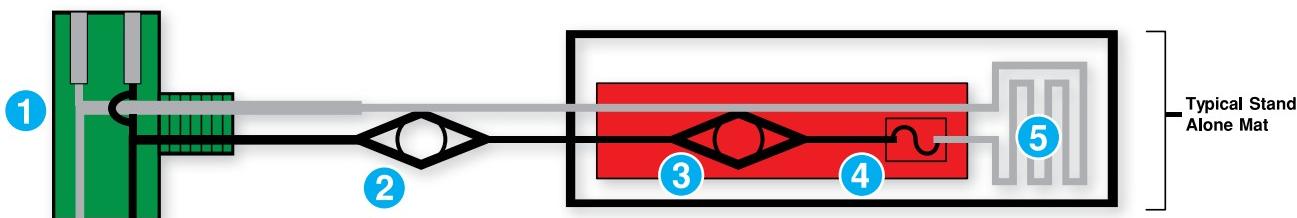
Turn on Temperature:5°C (41°F)
Turn off Temperature:15°C (59°F)

Mat Mounted Thermostat

Over Temperature Off:50°C (122°F)
Turn Back on:40°C (104°F)
Thermal Fuse Rating:85°C (185°F)

Optional Line Cord

ThermostatTurn on
Temperature:0°C (32°F)
Turn off Temperature:10°C (50°F)



Battery heater mats are an integral component in outdoor power solutions and need to be carefully integrated with the other system elements to ensure effective operations.

Please contact your Alpha representative to determine the proper battery heater mat required for your outdoor power system.

Battery Accessories



**ALPHAGUARD™
BATTERY CHARGE
MANAGEMENT SYSTEM**

AG-CMT-4 AlphaGuard™ Charge Management SC, 48V String – including Battery interface cable

The AlphaGuard is a battery charge management system that monitors and protects your batteries for runtime optimization and longer battery life. CSA and UL approved, AlphaGuard allows you to replace single batteries rather than the whole string.

It spreads charge voltage equally across batteries to maximize battery life and compensates for battery differences as they age.



BATTERY TESTING EQUIPMENT

Alpha's battery testing equipment provides accurate information about the status of installed standby batteries allowing you to budget for early detection of failed or degraded batteries and for replacements with confidence.

A fast, reliable and affordable testing process.

Conductance testing, coupled with a simple utility load test, arms the operator with the quality of data necessary to know the status of installed standby batteries, allowing for detection and replacement before failure occurs and puts backup during an outage at risk.



BATTERY SPACER CLIP

- Designed for use with most group 27 (165GXL) or 31 (3.5HP, 4.0HP, 195GXL, 220GXL) VRLA batteries
- Easy to install - clips to the top of the battery
- Increases battery life expectancy by providing critical battery spacing required for proper ventilation
- Accurately positions and secures the Remote Temperature Sensor (RTS)
- Strongly recommended for hot climates
- Designed to last over 30 years or lifetime of the equipment



AlphaGen™ Portable

3.0kW Portable 36/48Vdc Generator System

- DC technology requires no UATS (Universal Automatic Transfer Switch)
- No need to disconnect or reconnect power supply to utility power
- Selectable output for 36 or 48Vdc operation up to 3000W
- Quiet operation only 58dBA @ 7m (22ft)
- Completely enclosed, water resistant for safe operation in the field
- Oversized metal gas tank with level gauge for extended runtimes of up to 20 hrs

P/N: 041-028-10

Performance / Features

- Engine:** Honda GX 200 6.5hp, air-cooled, OHV, single cylinder, manual recoil starting, manual choke
- Rated power:** 2800W continuous, 3000W max
- Alternator:** Permanent magnet, brushless, bearingless
- Dual range selector:**
 - 36V: 39.5Vdc nominal at generator output connector
 - 48V: 52.5Vdc nominal at generator output connector
- Output regulation:** 1Vdc
- Control features:** Automatic voltage regulation
 - Electronic governor
 - Over current protection
 - Analog voltmeter with back light
- Cable interface:** Anderson type SBE-80 connector
- Fuel tank:** 3.4 gallon metal tank with level gauge
- Runtime:**
 - @ 25% load: 20hrs
 - @ 80% load: 10hrs
 - @ 100% load: 7.2hrs
- Audible noise:** Approx. 58dBA @ 7m under full load
- Frame:** Fully enclosed

Mechanical

- Dimensions:**
 - mm: 569H x 480W x 655D
 - inches: 22.4H x 18.9W x 25.8D
- Dry weight:** Less than 53.5kg (118lbs)

3.0kW Portable Generator Sound Levels

Ambient background noise level at 45dBA
All readings are 8 point averages

Required Accessories

- Output interface cable:Available in 10', 30' or 50' lengths
 Battery interface cable:Choose ring lug, heavy-duty alligator clamp, or Y-adapter*
- *Connects the power supply's battery input directly to the generator



30' Output interface
P/N: 875-324-20
10' P/N: 875-324-22
50' P/N: 875-324-21



Alligator clamp battery interface
P/N: 875-324-21



Ring lug battery interface
P/N: 874-946-21



Y-Adaptor battery
P/N: 874-946-22

Optional accessories:

- DCX-PG-WK:Portable generator wheel kit
P/N: 745-793-20
- AG-PG-TOOL:Punch tool kit for enclosures
P/N: 745-131-20
- AG-PG-UK:Enclosure upgrade kit
P/N: 745-131-21
- DCX-PG-HANDLE:Locking handle
P/N: 745-792-20
- AG-CAB-KIT:Cable bag with cable and key lanyard
P/N: 745-764-21



AlphaGen
front view



AlphaGen
portable trailer



AlphaGen
with wheel kit

Agency Compliance

CSA C22.2 No. 100-95, 107.1-01, 107.2-M89, 0.4 FCC part 15B Class A

ACX 2000i



- 1.4 gallon (5.3L) fuel tank
- Inverter equipped for clean AC power
- Limited 12VDC output
- Fuel economy switch
- Quiet operation, less than 67 dBA at 7m (22ft)

P/N: 041-036-10

Performance / Features

Engine type:4 stroke,OHV, single cylinder, air cooled, manual choke
Rated voltage:120Vac
12Vdc output:12Vdc to 8.3A
Rated power:1,900W continuous, 2,000W maximum
Rated current:15.8
Rated frequency:60Hz
Output connector:1 x 120Vac, 20A 5020R Duplex
Fuel:Unleaded Gasoline
Tank capacity:1.4gal (5.3L)
Runtime:

- @ 50% load:3.0hrs
- @ 100% Load:7.50hrs

Required accessories: ...Included Accessories
Audible noise db:56 to 66dBA @7m

Mechanical

Dimensions:
mm.....559L x 279.4W x 482.6H
inches.....22L x 11W x 19H
Dry weight:28kg (62lbs)
Weight w/fuel:36.2kg (80lbs)

Required Accessories

Output Interface Cable:

- Oil Jug
- 12V Charge Cable
- Spare Spark Plug
- Spark Plug Wrench & Handle
- Manual
- Oil Drain Extension

Battery Interface Cable(choose one):

* Connects the power supply's battery input directly to the generator

Agency Compliance

Certification:

- EPA
- CETL
- CARB
- ISO 9001

ITS Solutions



ALPHA MICRO SECURE 100

The Alpha Micro Secure 100 is ideal for small outdoor UPS applications with loads up to 100W such as highway cameras or road signs. The UPS and batteries are enclosed in a durable outdoor NEMA 3R plastic case, which can be easily pole mounted and padlocked for security.

- Multiple voltage output configurations
- Can be wall or pole mounted
- Communication capabilities via RS-232 port or optional Ethernet /SNMP interface
- CSA/UL approved for safety
- Batteries Included



ALPHA MICRO 350 AND 1000

The Micro Series provides a flexible, scalable solution for outdoor UPS applications up to 1000W. When power requirements grow, upgrade from the XL to the XL3 versions by simply adding an enclosure extension to accommodate additional batteries.

- Flexible system configurability
- Wide operating temperature of -40 to 74°C (-40 to 165°F)*
- Extended battery runtime achievable with add-on cabinets
- Communication capabilities via RS-232 port or optional Ethernet /SNMP interface
- Programmable control and report relays
- CSA / UL approved for safety

* UPS module only derate above 50°C



ITS SOLAR POWER SYSTEMS (sSPS)

Security Solar Power Systems (sSPS) are specifically designed, engineered and built to meet the unique powering requirements of wireless high-end security cameras in locations where grid power is either non-existent or impractical to access. Each sSPS model is a complete solution featuring:

- Integrated pole-mounted PV/solar panel
- Back-up battery storage
- Compact NEMA 3-R corrosion resistant enclosure with conformal coating
- Integrated on-board electronics support Class III 802.3 compliant cameras
- Operating temperature range from -20 to 55°C**
- Integrated Power over Ethernet (PoE) switch, 1-4 port pre-configured on selected models

** Temperature range applies to component functionality and not the potential effects of extreme temperatures on system or battery operations.



ALPHA LINE POWERING

Alpha Line Powering solutions enable providing power to outdoor remote equipment over standard telecom twisted pair wires. Power levels may range from 5 to 1500 Watts. These products use elevated DC voltage to transmit power over long distance up to 10 miles. They are a great solution for remote sites where AC utility is not available or battery maintenance is cost prohibitive. Alpha Line Powering product offer best in class density, reliability and efficiency:

- No AC power service is needed at the remote site
- Eliminate the need for battery backup at the remote sites
- High temperature tolerance for installation in harsh OSP environments
- Built-in current limiting and ground-fault protection to ensure the highest level of safety

For assistance, contact Alpha Technical Support

Toll free North America: 1.888.462.7487

Outside Canada and USA: +1.604.436.5547

7:00 AM - 5:00 PM North American Pacific Standard Time for regular inquiries

24/7 Emergency Support 1.888.462.7487

Services & Support

Alpha Service Plans

WHAT'S THE DIFFERENCE AT ALPHA?

Our distinctive service excellence at Alpha is not just having expertise or the latest high-tech equipment...but simply being as "easy to do business with" as possible, and understanding your powering challenges better than anyone else. Combining this with our innate understanding of Alpha product uniquely positions us as the most qualified supplier of services for power infrastructure in the marketplace.

Alpha's quality management system governs not only our products but our broad services portfolio, procedures and processes. Pooling this with our operational excellence and continuous improvement programs, we aim to achieve complete customer satisfaction by providing service of the highest standard and value.

If you have a pressing powering challenge, contact us with your specific requirements at **1.800.667.8743** or email **sales@alpha.ca**. Visit Alpha online at www.alpha.ca/service for more information.

| SERVICES | | | | | |
|--------------------------|---|---------------------------------|---------------------------------|------------------------|-------------------------|
| Service | Delayed Startup Warranty | Factory Warranty | Extended Warranty | Reliability | Reliability Plus |
| Remote Technical Support | Postpones Factory Warranty / Extended Warranty for 6 months - 2 years | 7:00 am - 5:00 pm PST Mon - Fri | 7:00 am - 5:00 pm PST Mon - Fri | 24x7 | 24x7 |
| Advanced Replacement | | 60 days post purchase | 90 days post purchase | 120 days post purchase | 180 days post purchase |
| Depot Repair | | Included | Included | Included | Included |
| Freight to Customer | | Included | Included | Included | Included |
| Install & Commissioning | Purchaseable via Quote | Purchaseable via Quote | Purchaseable via Quote | Discount Eligible | Discount Eligible |
| Parts | N/A | N/A | N/A | OOB Discount Eligible | OOB Discount Eligible |
| Preventative Maintenance | N/A | N/A | N/A | Annual PM Included | Annual PM Included |
| Onsite 5 Day Response | N/A | N/A | N/A | Time & Materials | Included *Priority |

| SERVICE UPLIFTS - A LA CARTE | | | | | |
|-------------------------------------|---------------------------------|-------------------------|--------------------------|-----------------------------------|-----------------------------------|
| Service | Delayed Startup Warranty | Factory Warranty | Extended Warranty | Reliability | Reliability Plus |
| Batteries | N/A | N/A | N/A | Discount Eligible | Discount Eligible |
| PM - more than annual | N/A | N/A | N/A | Discount Eligible >1 year term | Discount Eligible >1 year term |
| Onsite Next Business Day Response | N/A | N/A | N/A | N/A | Location Dependent |
| Onsite 2 Business Day Response | N/A | N/A | N/A | N/A | Location Dependent |
| Emergency Response | N/A | N/A | N/A | N/A | Location Dependent |



We offer a full range of services designed to optimize investments by protecting assets and maximizing uptime, while ensuring reliability and performance of your equipment throughout its working life.

All requests for repair are easily initiated by visiting www.alpha.ca/rma or calling toll free **1.888.462.7487**

UPS/BBS Selection Guide

Uninterruptible Power Supplies (UPS)/Battery Back-up System (BBS) selection guide for Traffic and ITS applications:

To help us design an Uninterruptible Power Supply for your traffic or ITS application, please review the following questions prior to contacting your Alpha representative.

1) Type of application

Traffic intersection (all LEDs including PEDs) Traffic intersection (partial LEDs) Intelligent Transportation System (ITS)

Other: _____

2) Installation requirements

New installation requiring enclosure, UPS, batteries, accessories Retrofit existing enclosure with UPS, batteries, accessories

Other: _____

3) Enclosure mounting requirements

Side mount to existing enclosure Plinth Pad Pole Other: _____

4) Commercial AC service voltage to the enclosure

120Vac 120/240Vac 120/208Vac 220Vac (international) Other: _____

5) Operating parameters of customer equipment

Input voltage to customer equipment: 120Vac 24Vac 48Vdc 24Vdc 12Vdc

Total power requirement (Watts) _____ Calculated or Measured

If you have loads that require different input voltages such as cameras used in ITS applications, please provide more details below.

NOTE: For traffic intersections, Alpha Technologies recommends that a current reading be taken at each site or at least a sample of intersections to determine the largest potential load.

6) Battery backup time

Backup time at full load shall be: _____ Hours _____ Min

Backup time at full load shall be: _____ Hours _____ Min then, _____ Hours _____ Min in red flash mode

7) Options and accessories

Remote SNMP monitoring & management of UPS
 Battery balancer/equalizer
 Automatic transfer switch
 AC surge protection
 Battery slider plate

Remote SNMP monitoring & management of batteries
 AC Generator connectivity in a police style door with type II lock
 External "ON BATTERY" red light
 Battery heater mats
 Tilt switch for emergency power off,
 should the enclosure be knocked off its base

8) Warranty/service needs

Extended depot warranty Annual service maintenance contract Delayed startup



"Yes, I have been fortunate enough to see the true benefits of Alpha power and what it can do for this industry and others. I experienced a FPL power grid outage that affected almost the whole east coast from Brevard County South to Miami Dade County. The only infrastructure elements running were our intersections, due to the fact that the City of Port Saint Lucie had taken proactive measures and installed battery backups on all their signals. We received calls from business owners and residents wanting to know how that was possible, they had no power for 6-8 hours and the signals never skipped a beat. This speaks volumes on the emergency personnel that would have been directing traffic instead of fighting crime, servicing the public or etc. Fuel for generators was saved also."

Brandon Collins, Signal Supervisor
Brevard County Traffic Ops Merritt Island FL, USA





Your Power Solutions Partner

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